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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/091,861 | 03/06/2002 | Yukihito Furuhashi | 15342 | 6943 |

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Scully, Scott, Murphy & Presser
400 Garden City Plaza
Garden City, NY 11530

EXAMINER

JUNG, WILLIAM C

ART UNIT PAPER NUMBER

3737

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/091,861 | Applicant(s) FURUHASHI ET AL. | |
| | Examiner William Jung | Art Unit 3737 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed June 4, 2004 have been fully considered but they are not persuasive.

The Applicant argues that the claims invention in claims 1 and 8 is distinct from Kooy since the first data set is a real image superimposed one a second data set, which is 3D data (remarks page 2, paragraph 4). The applicant also notes that the first image is a real image obtained by for example, a rigid endoscope and that the real image enables the operator to directly view the state of the affected part (page 2, paragraph 5). However, the Applicant's argument of first image data limitation is not claimed in claims 1 and 8 "first image output unit which outputs a real image of a subject that is grabbed by an image input unit". But Kooy et al specifically points out that CT data, *a real images* of series of 2D slices to form 3D data (created from projection image) is superimposed to a 3D MRI data (second image data) for the region of interest, i.e. representation of the state of the affected part.

In regard to the Applicant's argument on page 3, paragraphs 1-3; and page 5, paragraphs 2- 4; page 6, paragraph 1, Kooy et al's data size limitation is inherently disclosed, i.e. Kooy et al uses image registration of the superimposed first image data to a 3D MRI data requires the registration of the image slice location. Therefore, superimposed first data image cannot be larger than 3D data. In addition, since the first data image must be within the second data, the first data image is bounded by the second data boundary.

In regard to the Applicant's argument on page 4, paragraphs 1-3, Kooy et al teach a method of superposition of two image data set is which not restricted to CT and MRI. The

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images may be an X-ray images or other medical imaging modalities. Osadchy et al specifically teach that the display of the image data includes superposition of the contour, i.e. wired frame mapping, with a fluoroscopic image (more descriptively 3D CT). In contrast to the Applicant's argument, Osadchy implicitly state the use of wired frame image contour formation with explicit teaching of superimposing of the image with another image data.

In regard to claim 5 (page 6, paragraph 2), see above explanation regarding wired frame.

In regard to claim 7 (page 6, paragraph 4), Osadchy et al's contour image formation is a surface mapping of a particular object or image target, therefore, claim 7 do not distinguish of Kooy and Osadchy.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4 and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by *Kooy et al* (US 5,961,454).

Claims 1 and 8: Kooy et al anticipate all claimed features in claims 1 and 8. Kooy et al disclose of a medical imaging display method and apparatus where a first image comprises of real time image such as CT stereotactic slice and superimpose (superposition or fuse) it to the second image data consisting of 3D volume with position posture detection to determine the position of the first image slice in the spatial registration of the second image data (col. 1, lines 30-47; col. 2, line 64 – col. 3, line 27). The registration of the two-dimensional stereotactic

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image slices are subset of the 3D image data, therefore, the first image data is smaller than the 3D images (col. 3, lines 33-51). The superimposed 2D image data onto 3D images are displayed on a display screen (Col. 4, lines 45 – col. 5, line 5).

Claims 2-4 and 9-11: Kooy et al also disclose that the first and second images are displayed on a separate display with boundary indication of the overlapping region between the first and second images, i.e. outlining of the boundary regions (col. 4, line 53- col. 5, line 5).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5-7 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kooy et al* as applied to claims 1 and 8 above, and further in view of *Osadchy et al* (US 6,385,476).

Kooy et al substantially disclose of all claimed features in claims 5-7 and 12-14. However, Kooy et al does not include that the second imaging data is wire frame image. Osadchy et al further teaches that a image fusion or superpositioning to two images are done with three dimensional imaging including wire frame or surface mapping of the region of interest and applying the first or real time images to the mapped surface (col. 2, line 43 – col. 3, line 25). Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to apply the teachings of Osadchy et al to the teachings of Kooy et al because, Osadchy et al clearly demonstrates that a superpositioning of one image to a another as

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shown by Kooy et al is applied to wire frame or surface map 3D data with 2D real time images would improve the image quality.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Jung, Ph.D. whose telephone number is 571-272-4739. The examiner can normally be reached on Mon-Fri 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WJ

January 8, 2005

Eleni Mantis-Mercader
ELENI MANTIS-MERCADER
PRIMARY EXAMINER